

**MONTGOMERY COUNTY GOVERNMENT
ROCKVILLE, MARYLAND
CLASS SPECIFICATION**

**Code No. 205002
Grade 20**

EMERGENCY VEHICLE MECHANIC TECHNICIAN II

DEFINITION OF DUTIES:

This is journey level, skilled work involving inspection, maintenance, repair and testing of a variety of specialized light, medium and heavy duty mobile Fire and Rescue Service (FRS) equipment, such as (a) mobile structural firefighting apparatus (squads, pumpers, tankers and aerial equipment) and (b) mobile emergency medical services (EMS) equipment (such as ambulances, evacuation vehicles and mass casualty vehicles); in addition to maintenance/repair of these types of equipment, an employee in this class may maintain/repair specialized portable fire, rescue and EMS equipment. Primary business contacts are with (a) employees in FRS (such as equipment maintenance personnel and supervisors in the shop, firefighters and EMS providers) to exchange routine and non-routine information about equipment maintenance needs, and (b) manufacturers' representatives to exchange information about repair/service manuals and schematics that may be incomplete or inaccurate, as well as information about replacement parts. This class may entail some public service/assistance interactions incidental to the primary focus of the work performed.

An employee in this class, working under general supervision, is responsible for: exercising independent, journey level judgment to carry out preventive maintenance tasks; determining causes of vehicle/equipment operating problems by diagnosing problems across the full array of light, medium and heavy duty truck systems, subsystems and assemblies [such as but not limited to engines, fuel systems, exhaust systems, clutches, manual transmissions, automatic transmissions, power distribution systems, starting and charging systems, steering systems, air and hydraulic braking systems, air and hydraulic antilock braking systems, heating, ventilation, air conditioning and refrigeration (HVAC-R) systems, and chassis]; selecting and safely using proper tools, equipment, devices, manuals, references, and efficient procedures and techniques; and making repairs to such specialized fire/rescue and EMS apparatus as fire pump systems, water delivery systems, foam delivery systems, quint apparatus and aerial ladder systems/devices (which includes knowing and respecting divisions between FRS responsibilities and manufacturer responsibilities for maintenance and repair of specialized apparatus). An employee in this class independently plans and performs the successive steps involved in inspecting, maintaining, repairing and testing specialized FRS equipment (from troubleshooting and repair or replacement to certification of work performed) and handles problems and deviations in the work, using journey level judgment (based on experience and training), in accordance with guidelines. Guidelines include specifications and diagrams/schematics of manufacturers, repair/service manuals, service bulletins, National Fire Protection Association (NFPA) standards (including NFPA 1071 and 1911), troubleshooting guides, computer/electronic and analog gauge read-outs, operator comments, road test results, equipment maintenance shop SOPs, etc. The employee in this class relies on guidelines and experience/training to ensure that maintenance and repairs are consistent with requirements/standards and that equipment is safe to operate. [Due to customization or changes during production (as many vehicles are built-to-order), technical guidelines may be incomplete or inaccurate, yet tolerances required may be exacting. The employee selects and applies the appropriate guide(s) to specific

situations to bring the non-conforming system, sub-system, assembly or part to the specified parameters by adjustment, repair, replacement, etc., or works beyond available guides to diagnosis problems and make electro-mechanical repairs when key documentation is lacking. Also provides input on specifications for new equipment.] A supervisor skilled in the work provides guidance, assistance or training on unusually complex problems and unusual or nonstandard assignments, such as user acceptance testing of new equipment. Complexity of the work is linked to troubleshooting equipment that includes hydraulic, pneumatic, mechanical, electrical and electronically- or computer-controlled utility systems, some of which operate in conjunction with, and are dependent upon, each other for proper functioning. Complexity is characterized further by troubleshooting in context of limited information supplied by vehicle/equipment operators or partial or incorrect information in specifications and diagrams/schematics (on-line or in hard copy), having to perform maintenance and repairs to exacting tolerances for a large variety of equipment spanning many model years, and potential for a need to complete work started by another employee. The impact of properly performed work is emergency vehicles and other equipment that are ready for safe, operationally compliant emergency and non-emergency use, as designed. While this class is non-supervisory, employees in it may provide on-the-job training and instruction to less experienced personnel. Work is performed in a centralized equipment maintenance facility (mainly), on the road, at fire/rescue/EMS scenes or wherever a break down occurs. Outdoors repair work may be performed in any weather. Employees work in tiring and uncomfortable positions for long periods, and must continuously bend, reach, stretch, lift, stoop, climb and crouch often on top of, in, and under vehicles and engines in cramped and awkward positions. Performance of the work of the class regularly involves exposure to loud noises, vibrations, dust, dirt and grease. Employees perform physically strenuous work while standing, lying down, or sitting; and push, lift and carry or move and position work objects weighing up, or requiring force of, one hundred (100) pounds, and, occasionally, work objects/forces over one hundred (100) pounds; the employee obtains assistance or uses mechanical advantage, as appropriate. On a regularly recurring basis, work requires employees to move work objects and use tools near or immediately adjacent to energized equipment, which exposes employees to the potential adverse effects of compressed air, electrical current, belts, pulleys, fan blades and sharp edges. Additional hazards faced on a regularly recurring basis include spring-loaded parts, lifts and presses on wet/greasy floors, hot hydraulic fluids and oils, use of acetylene and oxygen cutting torches near flammable substances, battery acid and cleaning solvents, and working at heights of from ten to thirty feet above the ground or floor level. Performance of the work of the class may occasionally expose employees to human waste and/or body fluids, as may be found in ambulances. These hazardous working conditions require employees to maintain situational awareness, strictly follow safety rules and procedures and regularly use safety equipment, such as safety glasses, rubber or leather gloves, hearing protection, eye and face shield, respiratory mask, and steel-toe shoes. Despite these precautions, employees regularly receive cuts, burns, bruises and strains as well as eye, ear, nose, throat and skin irritations.

EXAMPLES OF DUTIES: (Illustrative Only)

- Performs preventive maintenance checks and services on equipment – checks tire wear, lubricates parts, replaces seals/wear rings, replaces filters, including high-efficiency particulate air (HEPA) filters in ambulance air filtration systems, etc.
- Diagnoses defects and causes of mechanical, hydraulic, electrical, electronic/computerized-based and other types of problems to determine type(s) and extent of repairs needed using diagnostic tools, manufacturers' repair/maintenance manuals, service bulletins, schematics and other guides, and journey level judgment.

- Maintains, tests and repairs specialized fire/rescue apparatus and medium-large fire/rescue/EMS equipment, such as fire pump systems, water delivery systems, foam delivery systems, quint apparatus, aerial ladder systems/devices, self-contained breathing apparatus (SCBA) mounting platforms and air fill stations.
- Connects, meshes, aligns, and adjusts items and systems to assure proper operation of the complete system or vehicle.
- Tears down and rebuilds components and assemblies of gasoline and diesel powered vehicles by fitting and installing needed parts such as pistons, valves, bearings, gears, and cylinders to appropriate tolerances; makes changes or modifications in accordance with specifications and guidelines.
- Maintains, tests and repairs hand-held/small equipment and tools used in fire/rescue/EMS operations, such as fans, hydraulic tools, Hurst tools, chain saws and circular saws.
- Road/performance tests vehicles and equipment during and occasionally upon completion of maintenance and/or repair work.
- Maintains service records and records of time and materials used.
- Participates in training programs and instructs lesser skilled employees.
- Reads and interprets sketches, specifications, and service manuals, and keeps abreast of service bulletins and other developments affecting the trade and equipment serviced.
- Works in machine shop and rebuilds equipment, parts, and materials needed for repair work; and fabricates parts, hydraulic hoses, and tools when unavailable.
- Handles hazardous waste properly, maintains work area in a clean and orderly manner and performs various “shop-keeping” tasks.
- Requests parts and checks them for compliance with manufacturers' specifications.
- Provides guidance and training to uniformed fire/rescue personnel on the mechanical aspects of apparatus and equipment they use.
- Responds to breakdowns in the field, including fire scenes, as needed, and may operate a tow truck.
- Occasionally, participates in development of specifications for new fire/rescue apparatus, in inspection of new fire/rescue apparatus during manufacture at various factory locations, and in investigation of fire/rescue vehicle collisions to determine whether mechanical failure or malfunction contributed to a collision, or the extent of the damage.
- Performs related duties as required.

KNOWLEDGE, SKILLS AND ABILITIES:

- Considerable (journey level) knowledge of the mechanical makeup, operation, and working relationships of a variety of medium-heavy duty truck systems, assemblies and parts, including such major systems as diesel, multi-fuel, and gasoline engines; fuel systems; exhaust systems; clutches; manual transmissions; automatic transmissions; power distribution systems; starting and charging systems; steering systems; air and hydraulic braking systems; air and hydraulic antilock braking systems; HVAC-R systems, chassis and gear reduction systems, including those with torque converters, planetary gears, and multiple gear ranges; and hydraulic lifting, loading, turning, positioning and stabilizing systems (including their mechanical, hydraulic, pneumatic and electronic controls). Examples of application of this body of knowledge include skill in removing and tearing down major components and assemblies including engines, transmissions, and power take offs; skill in rebuilding, adjusting, re-installing, aligning and meshing components and assemblies; and skill troubleshooting and repairing power take-off equipment.

- Knowledge of, or the ability to rapidly acquire knowledge of, the design of “made-to-order” fire/rescue apparatus and equipment, and how used and operated, to diagnose and repair fire/rescue and EMS vehicles and equipment at the journey level, to inform vehicle operators of key aspects of vehicle/equipment operation that affect maintenance and performance, to participate in development of specifications for, and inspection of, new apparatus, and to perform related functions.
- Knowledge of how computer, electrical, transistorized, and other non-mechanical systems tie in with and affect the operation of mechanical systems to perform diagnoses and other journey level functions.
- Knowledge of the (a) equipment standards and (b) tools, equipment, diagnosis, and test procedures and practices used in the repair and preventive maintenance of fire/rescue and EMS vehicles, apparatus and equipment (such as fire pump systems, water delivery systems, foam delivery systems, quint apparatus, aerial ladder systems/devices and crew compartments), as well as the maintenance, repair, fabrication and mounting of fire/rescue tools, equipment, hoses and appliances [such as self-contained breathing apparatus (SCBA) mounting platforms and air fill stations], to perform journey level mechanic functions.
- Knowledge of the occupational hazards and safety precautions of the fire/rescue apparatus and equipment mechanic trade to work safely.
- Skill in problem solving to select, organize and logically process relevant information (verbal, numerical or abstract) to solve a problem. This includes the ability to recognize subtle aspects of problems and identify relevant information. Examples include skill in planning and laying out one’s own work; in diagnosing mechanical, electrical and electronic malfunctions (including problems related to multiplex electrical systems common to high-performance medium and heavy duty trucks); in interpreting schematics; in applying technical and industry standards to inspect, examine, and perform journey level work on specialized fire/rescue/EMS apparatus and equipment; and in using the hand and power tools and equipment of the fire/rescue/EMS equipment mechanic trade.
- Skill in oral communication to understand verbal information (including facts, assertions and arguments) and to express such information verbally so that others will understand.
- Skill in written communication to understand written information, draw inferences, form hypotheses and develop logical arguments, and to express such information in writing so that others will understand. Examples include reading understanding service manuals/bulletins and completing records of work performed.
- Interpersonal skills to interact with others in a businesslike, customer service-oriented manner.
- Skill in working as a team member to provide excellent customer service.
- Skill in using a computer for communication (email), research (Internet) and other purposes.
- Ability to lift and move objects that weigh up to one hundred (100) pounds, and occasionally objects that weigh in excess of one hundred (100) pounds, obtaining assistance or using mechanical advantage, as appropriate.
- Ability to work overhead or in stretched, cramped, awkward, tiring, and uncomfortable positions.
- Ability to safely operate all fire/rescue apparatus and their respective components.
- Ability to use and wear personal protective clothing and equipment when exposed to dust, fumes, and other irritants to eyes, nose, ears, skin and respiratory system.
- Ability to distinguish between color-coded objects, such as electrical wiring.
- Ability and willingness to provide emergency repair service on fire/rescue/EMS apparatus and equipment outside the regular shop location.

MINIMUM QUALIFICATIONS:

Experience: Any combination of education, experience and training equivalent to four (4) years of verifiable, progressively responsible experience in problem diagnosis, repair, maintenance and inspection of automobiles, light-medium-heavy duty diesel or gasoline trucks, construction equipment, and/or fire/rescue/EMS vehicles, apparatus and equipment.

Education: Completion of high school or High School Certificate of completion recognized in the State of Maryland.

Equivalency: An equivalent combination of education and experience may be substituted.

License: At Time of Employment Application: Possession of a valid, current Class "C" or equivalent motor vehicle operator's license from the applicant's state of residence. **First Day of County**

Employment: Possession of *at least* a valid Instructional Permit for Class "A" commercial driver's license (CDL) issued by the applicant's state of residence. In addition, upon appointment/placement, employees in this class must possess and maintain a National Fire Protection Association (NFPA) Emergency Vehicle Technician (EVT) Level I certification, which includes successful completion of examinations in:

- T4 Medium-Heavy Truck, Brakes (National Institute for Automotive Service Excellence (ASE);
- T5 Medium-Heavy Truck, Suspension and Steering (ASE);
- T8 Medium-Heavy Preventive Maintenance Inspection (ASE);
- F1 Maintenance, Inspection and Testing of Fire Apparatus (EVT); and
- F2 Design and Performance Standards of Fire Apparatus (EVT).

Upon Completion of Probationary Period: Possession of a Class "A" CDL issued by the employee's state of residence; US Environmental Protection Agency-approved certification (for refrigerant recovery appropriate to the equipment serviced/inspected); and a Maryland State Forklift Operator License. In addition, within thirty-six (36) months from date of appointment/placement, employees in this class must obtain and maintain EVT Level II certification, which includes successful completion of examinations in:

- T2 Medium-Heavy Truck, Diesel Engines (ASE);
- T3 Medium-Heavy Truck, Drive Train (ASE);
- T6 Medium-Heavy Truck, Electrical/Electronic Systems (ASE);
- F3 Fire Pumps and Accessories (EVT); and
- F4 Fire Apparatus Electrical Systems (EVT).

PROBATIONARY PERIOD:

Individuals appointed to a non-bargaining unit position in this class will be required to serve a probationary period of six (6) months; or if promoted to a non-bargaining unit position in this class, serve a probationary period of six (6) months. Individuals appointed or promoted to a bargaining unit position in this class will be required to serve a probationary period of six (6) months. Performance will be carefully evaluated during the probationary period. Continuation in this class will be contingent upon successful completion of the probationary period.

MEDICAL EXAM PROTOCOL: Pre-placement Core II Exam.

Class Established: September 2015
Date Revised: February 2020

Revised: "Probational Period"